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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,952

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Gunther Burghardt

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EXAMINER

PHILLIPS, FORREST M

ART UNIT

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2837

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,952	<b>Applicant(s)</b> BURGHARDT, GUNTHER	
	<b>Examiner</b> FORREST M. PHILLIPS	<b>Art Unit</b> 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 17 is objected to because of the following informalities: line 3 of claim 17 is believed to contain a typographical error. "wherein said second cavity has a volume of 150 to 250 cubic millimeters" has been treated as reading "said third cavity..." as a volume range has already been given within claim 17 for the second cavity. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schreiber (US5092424).

With respect to claim 1 Schreiber discloses a sound generating apparatus comprising:

A first cavity (V'1 in figure 8) a second cavity (V'2 in figure 8) and an electro-mechanical transducer (12' in figure 8) for exciting sound waves in said first cavity and said second cavity, wherein said electro-mechanical transducer separates said first cavity and said second cavity;

A third cavity (V'3 in figure 8) being connected to said first cavity via a first passage (p'1 in figure 8) of predefined shape and said second cavity via a second passage (p'2 in figure 8) of predefined shape, said third cavity having one or more outlets (p'3 in figure 8) allowing sound waves to radiate into the exterior of said apparatus;

Wherein said first cavity and first passage are dimensioned so provide an acoustic resonance, wherein said second cavity and second passage are dimensioned to provide an acoustic resonance, wherein said third cavity and said one or more outlets are dimensioned to provide an acoustic resonance such that said sound generating apparatus has a low frequency range amplification in a frequency range.

Regarding the exact resonance values, and the ranges of 300Hz and 500Hz and 850 Hz to 7Khz such ranges would have been obvious to one of ordinary skill in the art since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. It is known that this includes the range in which human hearing is most sensitive.

With respect to claims 2-3 and 5 Examiner considers the ranges claimed to be optimization which would have been obvious to one of ordinary skill in the art. See In re Aller.

With respect to claim 6 Schreiber further discloses wherein said electromechanical transducer has a main direction for emitting sound and a supplementary direction for emitting sound, wherein waves emitted along said main

direction are radiated into said first cavity (V'1) and sound waves emitted along said supplementary direction are radiated into said second cavity (V'2). Examiner considers the "front" of a speaker is generally considered the primary direction of sound propagation.

With respect to claim 7 Schreiber further discloses wherein said first cavity has a first volume and said second cavity has an essentially bigger second volume (refer to figure 8).

With respect to claim 8 Schreiber discloses the invention as claimed except wherein the first and third volumes have approximately the same volume. It would have been obvious to one of ordinary skill in the art to select such sized chambers in order to tune the apparatus as a matter of obvious design choice. (Refer again to Column 2 lines 30-35) Examiner considers that it would have been obvious to one of ordinary skill to select any ratio of volumes as was required by the intended frequency of sounds.

With respect to claim 9 Schreiber further discloses wherein said first cavity and said second cavity are arranged adjacent to each other, and said first cavity and said second cavity are spatially separated from each other by said electro-mechanical transducer (see figure 8).

With respect to claim 10 Schreiber further discloses wherein said electro-mechanical transducer is a loudspeaker (see figure 8).

With respect to claim 11 Schreiber discloses the invention as claimed except wherein said apparatus is suitable for being implanted in a portable electronic device. Examiner considers this to be an obvious intended use of the apparatus, and it has

been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647

With respect to claim 12 Schreiber discloses the invention as claimed except wherein the sound generating apparatus is part of a mobile electronic device. Examiner considers this to be an obvious intended use of the apparatus, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

With respect to claim 13 Schreiber discloses a system for generating sound comprising:

A first cavity (V'1 in figure 8) a second cavity (V'2 in figure 8) and an electro-mechanical transducer (12' in figure 8) for exciting sound waves in said first cavity and said second cavity, wherein said electro-mechanical transducer separates said first cavity and said second cavity;

A third cavity (V'3 in figure 8) being connected to said first cavity via a first passage (p'1 in figure 8) of predefined shape and said second cavity via a second passage (p'2 in figure 8) of predefined shape, said third cavity having one or more outlets (p'3 in figure 8) allowing sound waves to radiate into the exterior of said apparatus;

Wherein said first cavity and first passage are dimensioned so provide an acoustic resonance, wherein said second cavity and second passage are dimensioned to provide an acoustic resonance, wherein said third cavity and said one or more outlets are dimensioned to provide an acoustic resonance such that said sound generating apparatus has a low frequency range amplification in a frequency range.

Regarding the exact resonance values, and the ranges of 300Hz and 500Hz and 850 Hz to 7Khz such ranges would have been obvious to one of ordinary skill in the art since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. It is known that this includes the range in which human hearing is most sensitive.

With respect to claim 14 It can be seen from figure 10 (the graph) that the embodiment of figure 8 allows for a shift of the main resonance frequency of said electro-mechanical transducer to lower frequencies (refer to graph, and Column 7 lines 5-25).

With respect to claim 15 Schreiber discloses the invention as claimed except for specifically the resonance shifting from approximately 950Hz to 850 Hz. It would have been obvious to one of ordinary skill in the art to design the system such that the shift was in approximately this range; it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 16 while not explicitly stated, it would have been obvious to dimension the cavities and passages such that the low frequency signals superimpose constructively. Schreiber expressly discloses that the output from the device results in improvements in bass output (see Column 7 lines 17-22). Constructive superposition would be the logical understanding of the way the waves are combined in order to provide for an improved low frequency bass output.

With respect to claims 17-18 Schreiber of embodiment 8 discloses the invention as claimed except wherein the cavities are dimensioned such that cavity 1 is smaller than cavity three and cavity three is smaller than cavity two, and their specified ranges and optimal values.

Schreiber of embodiment of figures 39 and 40a and 40b discloses the volume of cavity 2 is larger than that of cavity 1 and that the volume of cavity can be adjusted in such a manner that allows for a range of sizes, which can include volume 3 being larger than volume 1 but smaller than volume two, the change of size determining the amount of space it takes up and the bass, low frequency, response of the enclosure.

While not disclosing the exact values or the ranges therein of the cavities, it would have been obvious to select the values since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

Applicant's arguments filed 4/14/2008 have been fully considered but they are not persuasive. Applicant argues that embodiment of Schreiber figure 8 demonstrates



an outlet to the exterior of the encasing arranged differently than that of the present invention, that the transducer separates the first cavity from the second cavity and the dimensioning of the device with respect to frequencies.

Firstly examiner disagrees the outlet to the exterior is differently arranges, examiner considers that the transducer in figure 8 as also shown in figure 7 is separating the first and second cavities. Regarding the frequencies to be modified, examiner considers that such dimensioning would have been obvious to one of ordinary skill.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FORREST M. PHILLIPS whose telephone number is (571)272-9020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on 5712722227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FP

/Edgardo San Martin/  
Primary Examiner, Art Unit 2837